

Supplementary Material for

Facile synthesis of magnetic intelligent sensors for pH-sensitive controlled capture of Cr(VI)

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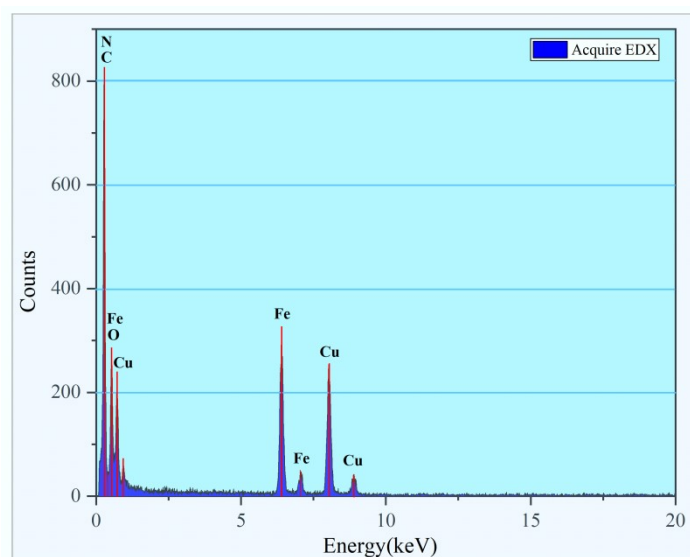


Fig. SI EDS spectra of Fe₃O₄/RhB@PAM nanosensors.

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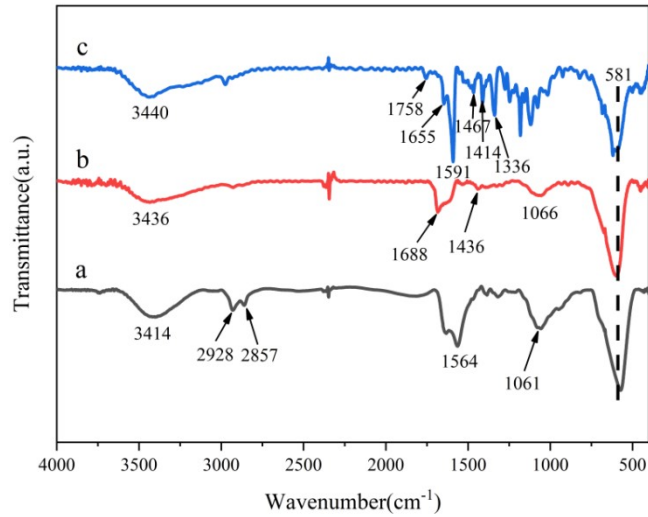


Fig. S2 FT-IR spectra of (a) $\text{Fe}_3\text{O}_4\text{-NH}_2$, (b) $\text{Fe}_3\text{O}_4\text{-COOH}$ and (c) $\text{Fe}_3\text{O}_4/\text{RhB@PAM}$.

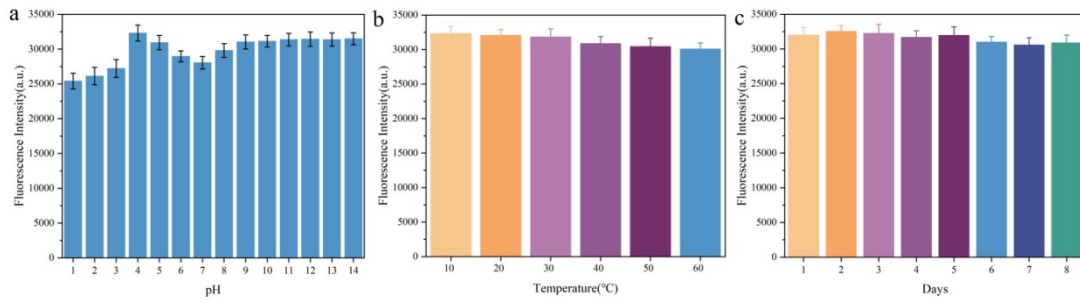


Fig. S3 Fluorescence intensities of the $\text{Fe}_3\text{O}_4/\text{RhB@PAM}$ sensors at different (a) pH, (b) temperature and (c) storage time. The excitation and emission wavelengths were 554 nm and 582 nm, respectively. Slit: 2.0 nm/2.0 nm.

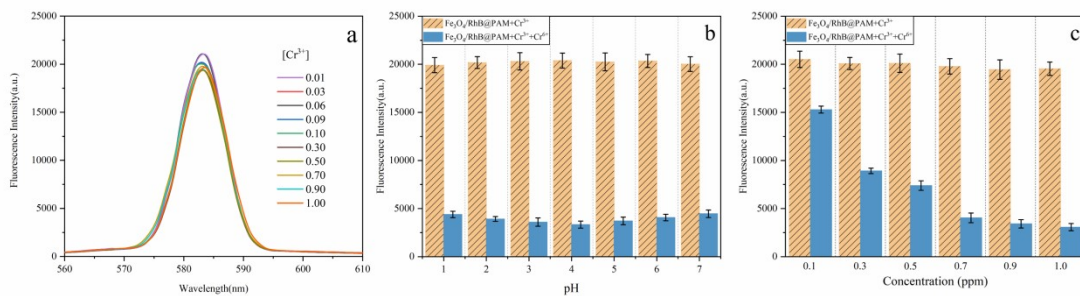


Fig. S4 (a) Fluorescence spectra of $\text{Fe}_3\text{O}_4/\text{RhB@PAM}$ after addition of different amounts of Cr(III) in aqueous solution (pH 4), (b) the fluorescence intensities of $\text{Fe}_3\text{O}_4/\text{RhB@PAM}$ sensors with Cr(III) (0.9 ppm) and Cr(III)+Cr(VI) (0.9 ppm) at different pH values and (c) the fluorescence intensities of $\text{Fe}_3\text{O}_4/\text{RhB@PAM}$ sensors with Cr(III) (0.9 ppm) and Cr(III)+Cr(VI) (0.9 ppm) at different concentrations.

fluorescence intensities of $\text{Fe}_3\text{O}_4/\text{RhB}@PAM$ sensors with Cr(III) and Cr(III)+Cr(VI) at different concentrations (the concentrations of Cr(VI) and Cr(III) are the same). The excitation and emission wavelengths were 554 nm and 582 nm, respectively. Slit: 2.0 nm/2.0 nm.

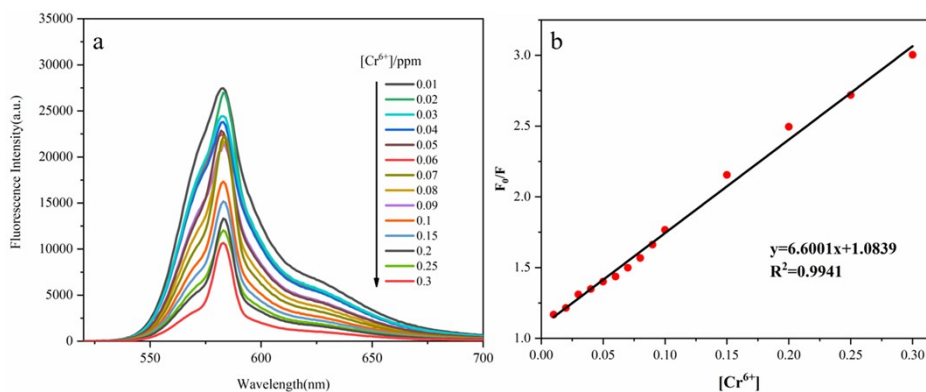


Fig. S5 (a) Fluorescence spectra of RhB after addition of different amounts of Cr(VI) in aqueous solution (pH 4) and (b) plot of the fluorescence intensity versus various concentrations of Cr(VI) . F_0 is the fluorescence intensity of RhB, F is the obtained fluorescence intensity after addition of Cr(VI) . The excitation and emission wavelengths were 554 nm and 582 nm, respectively. Slit: 2.0 nm/2.0 nm.